

ABSTRACT

Microrelays and microrelay fabrication and operating methods providing a microrelay actuator positively controllable between a switch closed position and a switch open position. The microrelays are a five terminal device, two terminals forming the switch contacts, one terminal controlling the actuating voltage on an actuator conductive area, one terminal controlling the actuating voltage on a first fixed conductive area, and one terminal controlling the actuating voltage on a second fixed conductive area deflecting the actuator in an opposite direction than the first fixed conductive area. Providing the actuating voltages as zero average voltage square waves and their complement provides maximum actuating forces, and positive retention of the actuator in both actuator positions. Various fabrication techniques are disclosed.